

User Manual

IENT / IEHR 70- 150 Watt DC-DC Converter



Z367



Z367



- Isolated input- output - chassis
- Designed for industrial use
- Output over voltage protection (IEXT)
- Constant current limit for charging (IEXT)
- Input transient/surge suppression
- Short circuit protection
- Reverse polarity protection
- External trim pot for output voltage adjustment
- Output decoupling diode and dc fail alarm standard

♦ 24 Month Warranty

SPECIFICATIONS All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL

DC Input (nominal)	12, 24, 36, 48V
Protection - input	All models: Input fuse
• output	IEXT: <i>Overload</i> : constant current limit <i>Severe overload</i> : shuts down when output < 5V, power off to reset IEHR: Hiccup mode current limit
Reverse Polarity	IEXT/LV & IEHR: input fuse IEXT/MV & IEXT/HV: not polarity sensitive
Transient Protection	Input varistor
Isolation	1KV DC input - output - chassis
Efficiency	LV: 72-80%, MV/24/48: 80-87%, HV: 85-87%
Overvoltage Protection (IEXT only)	Operates at 25% above nominal output voltage (converter shuts down - reset by power off)
Soft Start	1 second typical
Output Power	IEXT: 70W continuous IEHR: 150W continuous
Output Voltages	Refer to model table - other voltages available, please ask our sales staff
Voltage Adj. Range	Approx. ±10%, refer to model table
Line Regulation	< 0.5% over input range
Load Regulation	< 0.7% open circuit to full load
Ripple	Typically 1% Peak-Peak
EMC	To CISPR22:1985
Operating Temperature	0 to 40°C; linearly derate to 50% output at 50°C
Alarm contacts	Changeover, 1A 30VDC

PHYSICAL

Connections - In/Out	IEXT: Plug-in screw terminal block IEHR: 'Barrier' type screw terminal
Enclosure	Base: anodised aluminium Cover: black powder coated mild steel
Indicators	Green LED for Power On
Weight	IEXT: 450g IEHR: 1.25Kg
Mounting	IEXT: M5 Ø holes 164 x 46 mm, and/or: M3 threaded inserts 164 x 66 mm IEHR: To flat surface with brackets supplied, M4 Ø holes. Side mounting centres 140 x 78 mm, End mounting centres 216 x 78 mm

OPTIONS

Rack mount	Converter fitted into 19" x 2U subrack Add : +RM2U plus +REARHR6.1
DIN Rail Mount	Using DIN rail clips, code DINKIT
Fork Hoist Use	Please contact our sales office, add option: +FORKHOIST
Low Temperature	Operation to -20°C, add suffix -LT
Conformal Coating	For harsh environments, add option: +CONFORMAL COATING
Battery Charging * Please specify output voltage on ordering	The IEXT has a constant output current limit and is suitable for battery charging. The IEHR does not have a constant current limit but may be used for battery charging for some applications.
Undervoltage lockout	Available on IEXT/LV models, Lockout at 10.2V, auto reset at 12.4V, add suffix -UV
Use with laptops	Some laptops require a 'SENSE' terminal - the diode is replaced with a resistor and the D+ terminal becomes the "SENSE" terminal.

70-150W Isolated DC-DC Converter

IEXT & IEHR

STANDARD MODEL TABLE - IEXT - 70 Watt

MODELS* ¹	DC Input	DC Output		
	Voltage Range	Voltage* ⁴	Amps	Voltage Range
IEXT/LV-05P* ²	11-16	5	10	4.5 - 5.5
IEXT/LV-12P	11-16	13.8	5.0	11 - 14
IEXT/LV-18P	11-16	18	3.8	16 - 20
IEXT/LV-24P	11-16	24	2.9	22-28
IEXT/LV-48P	11-16	48	1.5	43-55.2
IEXT/MV-08P* ³	21 - 60	8	6.5	7.6 - 9.5
IEXT/MV-12P	21 - 60	13.8	5.0	11 - 14
IEXT/MV-18P	21 - 60	18	3.8	16.6 - 20.3
IEXT/MV-24P	21 - 60	24	3.0	22-28
IEXT/MV-48P	21 - 60	48	1.5	43-55.2
IEXT/HV-12P	60 - 132	13.8	5.0	11-14
IEXT/HV-24P	60 - 132	24	3.0	22-28
IEXT/HV-48P	60 - 132	48	1.5	43-55.2

*1 Model codes without the -P suffix do not have diode and alarm relay fitted

*2 No overvoltage protection

*3 No input rectifier bridge

*4 Refer to terminal connections below. Output voltage is set at +D output except for 12V models where the '+' output is set to 13.8V

STANDARD MODEL TABLE - IEHR - 150 Watt

MODELS* ¹	DC Input	DC Output		
	Voltage Range	Voltage* ⁴	Amps	Voltage Range
IEHR/LV-12P	10.5-16	13.8	11.2	11-14
IEHR/LV-24P	10.5-16	24	6.2	22-28
IEHR/LV-36P	10.5-16	36	4.2	32-41.4
IEHR/LV-48P	10.5-16	48	3.2	43-55.2
IEHR/24-12P	21-40	13.8	11.2	11-14
IEHR/24-24P	21-40	24	6.2	22-28
IEHR/24-36P	21-40	36	4	32-41
IEHR/24-48P	21-40	48	3.2	43-55.2
IEHR/48-12P	40-60	13.8	11.2	11-14
IEHR/48-24P	40-60	24	6.2	22-28
IEHR/48-36P	40-60	36	4	32-41
IEHR/48-48	40-60	48	3.2	43-55.2
IEHR/HV-12P	60 - 132	13.8	11.2	11-14
IEHR/HV-24P	60 - 132	24	6.2	22-28
IEHR/HV-36P	60 - 132	36	4.2	32-41.4
IEHR/HV-48P	60 - 132	48	3.2	43-55.2



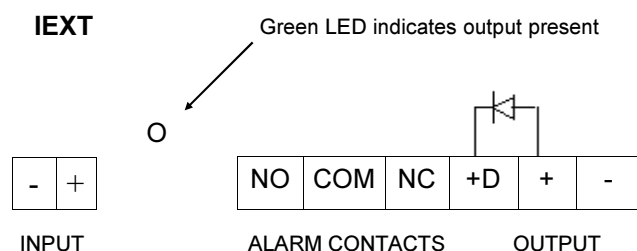
Dimensions: IEXT
180L x 82W x 37H



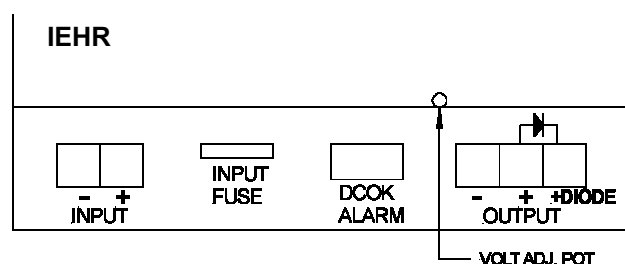
Dimensions: IEHR
207L x 130W x 60H

TERMINAL LAYOUTS

IEXT



IEHR



Safety

The user is responsible for ensuring that input and output wiring segregation complies with local standards and that in the use of the equipment, access is confined to operators and service personnel. A low resistance earth connection is essential to ensure safety and additionally, satisfactory EMI suppression (see below).

HAZARDOUS VOLTAGES EXIST WITHIN A POWER SUPPLY ENCLOSURE AND ANY REPAIRS MUST BE CARRIED OUT BY A QUALIFIED SERVICEPERSON.

Electrical Strength Tests

Components within the power supply responsible for providing the safety barrier between input and output are constructed to provide electrical isolation as required by the relevant standard. However EMI filtering components could be damaged as result of excessively long high voltage tests between input, output and ground. Please contact our technicians for advice regarding electric strength tests.

Earth Leakage

Where fitted, EMI suppression circuits cause earth leakage currents which may be to a maximum of 3.5mA.

Ventilation

High operating temperature is a major cause of power supply failures, for example, a 10°C rise in the operating temperature of a component will halve its expected life. Therefore always ensure that there is adequate ventilation for the equipment. Batteries in particular suffer shortened lifetimes if subjected to high ambient temperatures.

Water / Dust

Every effort must be made in the installation to minimise the risk of ingress of water or dust. Water will almost always cause instant failure. The effects of dust are slower in causing failure of electronic equipment but all electrical equipment should be cleaned free of any dust accumulation at regular intervals.

Electromagnetic Interference (EMI)

Switching power supplies and converters inherently generate electrical noise. All wiring should be as short as practicable and segregated from all equipment wiring which is sensitive to EMI. Residual noise can be reduced by looping DC wiring through ferrite cores (sleeves). These are most effective as close to the power supply as possible and as many turns of the wire taken through the core (+ and - in the same direction) as the core will accommodate.

External fuse protection

Fuses or circuit breakers must be used in all battery circuits to protect against short circuits. External fuses should be used for power supplies/ chargers even though they are usually internally protected.

Connection polarity

It is critical to check the polarity carefully when connecting DC devices. Some Innovative Energies models have non-destructive reverse polarity protection but usually a reverse polarity connection will result in a blown fuse or serious damage to the device.

WARRANTY

Innovative Energies Ltd warrants its power supplies for 24 months (two years) from date of shipment against material and workmanship defects.

Innovative Energies' liability under this warranty is limited to the replacement or repair of the defective product as long as the product has not been damaged through misapplication, negligence, or unauthorized modification or repair.